

## Diagnoses specierum novarum in herbario Horti Regii Botanici Edinburgensis cognitarum DCI-DCXIII

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***Aconitum calthifolium* Comber. Sp. nov.**

Species affinis *A. Souliei* Fin. et Gagnep. sed foliis inferioribus cordatis, haud dissectis, sepalo posteriore breviter rostrato, antheris glabris differt.

Herba perennis 0.3-1.3 m. attingens. Radices primariae tuberosae fuscae, unicae nunc etiam quaternae, 5 mm. diam., 2-3 cm. longae, radiculis paucis fibrosis indutae. Caulis erectus, fistulosus, angulosus, ad 7 mm. diam., foliosus, plus minusve pubescens vel glabrescens. Folia utrinque sed praecipue ad nervos sparse setosa; basalia desunt; caulina inferiora cordata, 5-9 cm. longa, 6-12 cm. lata, grosse dentata dentibus inaequalibus apiculatis, superiora 3-5-fida, ambitu anguste cordata vel triangularia, usque ad 6 cm. longa, 5 cm. lata, sursum diminuentia, irregulariter dentata, petiolo brevi. Inflorescentiae pauciramiosae, albido-pilosae, ramis 3-5-floris patentibus ad apicem recurvatis; bractae plerumque ambitu lanceolatae pinnatifidae. Flores sulfurei caeruleo- vel purpureo-suffusi; pedicelli 1-1.4 cm. longi, dense flavido-pilosi. Sepala utrinque longe et conspicue flavido-pilosa; posterius galeiforme, brevirostratum margine inferiore paulo concavum, circ. 1 cm. altum, 2 cm. latum; lateralia oblique suborbicularia, circ. 1.7 cm. longa, 1.9 cm. lata, vix unguiculata; inferiora oblongo-lanceolata vel ovata nunc obovata, subacuta, 1.2 cm. longa, 5 mm. lata. Petala glabra, circ. 2 cm. longa; unguis apicem versus sub angulo recto geniculati, circ. 1.5 cm. longi; limbi circ. 7 mm. longi; calcaria brevia, crassa, abrupte reflexa, labio lato paulo recurvato

emarginato. Filamenta glabra, 7-8 mm. longa, parte inferiore alata, ultra medium filiformia; antherae globosae. Carpella 5, dense aureo-pilosa; styli recti atri, sub anthesi carpellis subduplo breviores.

N.E. UPPER BURMA.—Plant of 1 to 2½ ft. Flowers dull blue, exterior golden with down. On open alpine meadows. Western flank of the Chimili. N'Maikha-Salwin divide. Lat. 26° 23' N. Long. 98° 48' E. Alt. 12,000 ft. In immature flower, August 1924. G. Forrest 24878.

Plant of 2 to 2½ ft. Flowers pale yellow, tipped blue. On open alpine meadows. West flank of the N'Maikha-Salwin divide. Lat. 26° 45' N. Long. 98° 48' E. Alt. 14,000 ft. In flower October 1925. G. Forrest 27445.

Plant of 3 to 4½ ft. Flowers soft yellow, tinged ruddy purple on exterior. On alpine meadows. West flank of the N'Maikha-Salwin divide. Lat. 26° 45' N. Long. 98° 48' E. Alt. 14,500 ft. In flower, October 1925. G. Forrest 27448 (type).

In flower and young fruit, October 1925. G. Forrest 27549.

In young fruit, October 1925. G. Forrest 27553.

Glades and meadows. Flowers white. Chimili Alps. Alt. 11-12,000 ft. In young fruit, October 1919. R. Farrer 1402.

This species is allied to *A. Souliei* Fin. et Gagnep., but may easily be distinguished from it by the more glabrous, cordate, and undivided lower leaves, the absence of a prominent beak to the hood, and by the glabrous anthers. Farrer's plant has the upper stem leaves rather more divided, but it evidently belongs to this species.

***Aconitum Georgei* Comber. Sp. nov.**

*Aconitum Forrestii* vel. aff. Notes Roy. Bot. Gard., Edin. xvii (1929), 124.

*Aconitum* sp. aff. *ferox* Wall. Notes l.c. 126.

Species affinis *A. Forrestii* Diels et *A. Elwesii* Stapf; ab hoc habitu robustiore foliis angustioribus crassioribus obtuse dentatis, floribus caeruleis, inflorescentiis et carpellis pubescentibus; ab illo internodiis longioribus, foliis minus congestis angustioribus distincte petiolatis, inflorescentiis laxioribus minus pilosis, casside longe rostrata, carpellis pubescentibus, stylo brevior differt.

Herba perennis, erecta vel nunc scandens, 0.6-1.5 m. alta. Radix tuberosa, simplex vel furcata, striata, fusco-nigrescens, 8-11 cm. longa, 1-8 cm. lata, radiculis numerosis ramosis fibrosis fulvido-pilosis. Caulis inferne nudus (nunc foliorum rudimentis praeditus) glaber, fistulosus, circ. 1 cm. diam., superne foliosus, internodiis 4-7 cm. longis, saepe purpurascens, circ. 2.5 mm. diam., pilis albis deorsum recurvatis sparse vestitus. Folia glabra lobis mediis conspicuis subrhomboideis, lateralibus multo minoribus subpinnatifidis grosse crenato-dentatis, dentibus apiculatis; inferiora ambitu rotundata vel late cordata, circ. 6 cm. longa, 8 cm. lata, palmatifida, petiolis circ. 3 cm. longis; superiora ambitu cordata vel subtriangularia, circ. 10 cm. longa, 8 cm. lata,

3-5-palmatifida, petiolis brevioribus. Inflorescentiae erectae vel dependentes, sparse recurvato-et albo-pilosae, laxae 5-10-florae, ramosae (ramis patentibus 3-4-floris), inferne foliosae, superne bracteatae bracteis plerumque trifidis. Flores speciosi circ. 4 cm. longi, 2 cm. lati, intense caeruleo-purpurei; pedicelli 2.5-3.5 cm. longi; bracteolae binae, suboppositae, lineari-lanceolatae. Sepala extra crispule pubescentia, intus sparse villosa, posteriore excepto; posterius circ. 2.3 cm. longum, 1.8 cm. latum, 1.3 cm. altum, margine inferiore concava, rostro conspicuo ad 8 mm. longo acuto patente vel leviter deflexo; lateralibus ciliata oblique suborbicularia, 1.8 cm. longa, 1.6 cm. lata; inferiora late oblanceolata, circ. 1.8 cm. longa, 4 mm. lata. Petala circ. 2.2 cm. longa; unguis plus minusve curvatus, circ. 1.8 cm. longi; limbi gibbosi, circ. 1 cm. longi; calcaria brevissima, crassa, glabra vel nunc ad apicem sparse ciliata, labio latiusculo bilobo paulo recurvato. Filamenta ad 1 cm. longa, glabra, edentata, inferne alata, ultra medium filiformia; antherae globosae. Carpella 4-5, dense pubescentia, stylis rectis subtriplo brevioribus.

W. CHINA.—Yunnan. Plant of 3 to 5 ft. Flowers deep bluish-purple. Margins of thickets. Lei-lung Shan. Lat. 28° 10' N. Alt. 11-12,000 ft. In flower, September 1917. G. Forrest 15195 (type).

Plant of 2 to 4 ft. Flowers deep blue-purple. Amongst scrub. Mountains east of Chungtien. Lat. 27° 50' N. Alt. 11,000 ft. In flower, July 1917. G. Forrest 15235.

This species is near to *A. Elwesii* Stapf and *A. Forrestii* Diels, but from the former it differs in the narrower leaves with obtuse teeth, the blue flowers more or less pubescent without, and in the pubescent inflorescence and carpels. From the latter it may be distinguished by its leaves distinctly petiolate, narrower, less congested, and less pilose. The very prominent beak of the hood and the pubescent carpels with shorter styles are other obvious divergences.

***Aconitum Handelianum* Comber. Sp. nov.**

*Aconitum* sp. aff. *macrorhynchum* Turcz. Notes Roy. Bot. Gard., Edin. xiv (1924), 320.

Species affinis *A. macrorhyncho* Turcz. sed sepalo posteriore breviter rostrato, filamentis edentatis pubescentibus, carpellis dense hirsutis satis distincta.

Herba perennis, 40-60 cm. alta. Radices dauciformes, circ. 4 cm. longae, 7 mm. diam., fuscae, radiculis fibrosis sparsis crassiusculis. Caulis basi tenuis, geniculatus flexuosus teres fistulosus dense pubescens. Folia inferiora longe petiolata, glabra, ad basim caulis congregata, ambitu late cordata vel subreniformia, 4.5 cm. longa, 7 cm. lata, 5-palmatipartita, segmentis subaequalibus bi-vel tripinnatisectis, ultimis ligulatis acutis, usque ad 2 cm. longis, 0.5-2.5 mm. latis, petiolis tenuibus 6-12 cm. longis; superiora brevi-petiolata vel subsessilia, 3-5-partita, plus minusve dense pubescentia. Inflorescentiae simplices



vel basin versus pauciramosae, circ. 20-florae, pilis et erectis bulbosis flavis et recurvatis albis tenuibus sparsioribus vestitae. Bracteae inferiores foliaceae multisectae; superiores integrae lineari-lanceolatae. Flores intense caeruleo-purpurei, pedicellis 0.5–3 cm. longis, bracteolis binis purpurascenscentibus. Sepala utrinque pubescentia nisi posterius intus glabrum; posterius circ. 2 cm. longum, 9 mm. altum, 1.5 cm. latum, margine inferiore alte concava, rostro breve deflexo; lateralalia obliquiter semiorbicularia, circ. 1.5 cm. longa et lata, vix unguiculata; inferiora late lanceolata vel ovata, circ. 1 cm. longa, 4 mm. lata. Petala circ. 2.7 cm. longa; unguis circ. 2.3 cm. longi, valde recurvati, sparse hispidi; limbi circ. 7 mm. longi, gibbosi, glabri; calcaria brevissima, crassiuscula recurva, labio minore paulo recurvato emarginato. Filamenta 5–7 mm. longa, usque ad medium late alata, superne filiformia, edentata; antherae subglobosae vel ovatae. Carpella 5, dense flavido-pubescentia, sub anthesi 3 mm. longa, in stylos brevissimos attenuata, post anthesin circ. 1.2 cm. longa, 3.5 mm. lata, stylis patentibus, 3 mm. longis. Semina angulata, subovoidea, cinereo-brunnescentia, squamis numerosis scariosis undulatis transversaliter induta.

W. CHINA.—Yunnan. Plant of 16–24 inches. Flowers rich indigo-purple. Amongst scrub and heavy grass on the margins of thickets. Chienchuan-Mekong divide. Lat. 26° 30' N. Long. 99° 40' E. Alt. 12,000 ft. In flower and nearly ripe fruit, September 1922. G. Forrest 22257 (type).

This species is related to *A. macrorhynchum* Turcz., from which it differs principally in the short beak of the hood, the filaments edentate and pubescent, and in the densely hairy carpels.

***Aconitum piepunense*** Hand.-Mazz. var. ***pilosum*** Comber. Var. nov.  
A typo sepalis petalisque ovariisque pilosis differt.

W. CHINA.—Yunnan. Without precise locality. In flower. G. Forrest 28891 (type of var.).

This variety is distinguished from the type by the nectaries, stamens, and ovaries being pilose.

***Aconitum Souliei*** Fin. et Gagnep. var. ***glabrum*** Comber. Var. nov.  
*Aconitum* sp. Notes Roy. Bot. Gard., Edin. xiv (1924), 256.

A typo carpellis petalisque filamentisque glaberrimis differt.

W. CHINA.—Yunnan. Plant of 6–10 in. Flowers dull creamy yellow, flushed and slightly veined dull green on exterior. Open alpine meadows on the margins of scrub. Mountains north-east of Muli. Lat. 28° 24' N. Long. 101° 6' E. Alt. 13–14,000 ft. In flower, June 1922. G. Forrest 21419 (type of var.).

Plant of 2 ft. On open alpine pasture. Mekong-Salwin divide. Lat. 28° N. Alt. 13–14,000 ft. In fruit, September 1917. G. Forrest 14926.

**Anemone coelestina** Franch.

The species and varieties of *Anemone* in this group are extremely difficult to define. Forrest's material adds considerably to our knowledge of the Chinese plants and introduces one or two new features.

I follow Dr. Handel-Mazzetti (Symb. Sin. 1930, 316) in retaining *A. coelestina* Franch., and so it becomes necessary to transfer *A. trullifolia* Hook. f. et Thoms. var. *holophylla* Diels to this species. When naming Forrest's earlier collections Diels seems to have accepted as *A. coelestina* Franch. a plant with more or less round leaves, truncate, and not cuneate at the base, and from it his *A. trullifolia* var. *holophylla* differs considerably. But this variety diverges from Franchet's species only in the even tothing of the leaves, which are not trilobed; hence it can only be considered as a form.

The plants with roundish leaves, truncate at the base and more or less trilobed, but not completely trisect (Diels' *A. coelestina*), seem to link up with *A. coelestina* Franch. more closely than with its trisected-leaved allies, and are here determined as *A. coelestina* var. *truncata*.

A smaller plant with more than twice the usual number of carpels, and leaves more or less intermediate is the new var. *polygyna*.

**Anemone coelestina** Franch. forma **holophylla** (Diels) Comber. Comb. nov.

*A. trullifolia* Hook. f. et Thoms. var. *holophylla* Diels in Notes Roy. Bot. Gard., Edin. v (1912), 263 et vii (1912), 103, 109.

**Anemone coelestina** Franch. var. **polygyna** Comber. Var. nov.

*A. trullifolia* Hook. f. et Thoms. var. *campestris* Diels nomen in Notes Roy. Bot. Gard. Edin. vii. (1912), 148, 323 p.p., 338 pp.

A typo carpellis numerosissimis (circ. 30) differt.

W. CHINA.—Yunnan. Plant of 1-2 in. Flowers white, striped bright green. Stony pastureland at base of the eastern flank of the Lichiang Range. Lat. 27° 12' N. Alt. 9-10,000 ft. In flower, July 1906. G. Forrest 2634 (type of var.).

This plant differs from the type in that it is much dwarfer and has many more carpels—30 instead of the usual 8-12.

**Anemone coelestina** Franch. var. **truncata** Comber. Var. nov.

*A. coelestina* Notes Roy. Bot. Gard. Edin. vii (1912), 100, 116.

*A. obtusiloba* Don var. *caerulea* Notes Roy. Bot. Gard. v (1912), 264 p.p.; vii (1912), 102, 323 p.p., 338 p.p.

*A. trullifolia* Hook. f. et Thoms. var. *campestris* Diels nomen in Notes Roy. Bot. Gard. vii (1912), 110, 323 p.p., 338 p.p.

A typo foliis basi truncatis vel cordatis recedit; ad *A. Geum* Lévl. approximatur sed foliis trilobis haud trisectis differt.

W. CHINA.—Yunnan. Plant of 3-6 in. Flowers deep rich blue. Dry grassy openings in pine forests on the eastern flank of the Lichiang

Range. Lat.  $27^{\circ} 12' N$ . Alt. 10-11,000 ft. In flower, May 1906. G. Forrest 2129.

Plant of 2-6 in. Flowers white, exterior of perianth blue. Crevices of rocks. Eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20' N$ . Alt. 10-11,000 ft. In flower, May 1906. G. Forrest 2152.

Plant of 2-4 in. Exterior of perianth blue, interior white. Arid stony plain at the north end of the Lichiang valley. Lat.  $27^{\circ} 12' N$ . Alt. 8,500 ft. In flower, June 1906. G. Forrest 2232.

Plant of 5-8 in. Flowers lavender blue. In open pine forests on the eastern flank of the Lichiang Range. Lat.  $27^{\circ} 20' N$ . Alt. 11,000 ft. In flower, June 1906. G. Forrest 2289.

Plant of 3-6 in. Flowers white or blue. Moist shady pine forest. Eastern flank of the Lichiang Range. Lat.  $27^{\circ} 15' N$ . Alt. 10-11,000 ft. In flower, May 1910. G. Forrest 5640 (type of var.).

Plant of 4-9 in. Interior of perianth white or lavender, exterior dark blue. Shady pine and rhododendron forests. Western flank of the Lichiang Range. Lat.  $27^{\circ} 20' N$ . Alt. 12-13,000 ft. In flower, June 1910. G. Forrest 5802.

Plant of 4-6 in. Flowers blue. Shady situations in pine and mixed forests. Eastern flank of the Lichiang Range. Lat.  $27^{\circ} 25' N$ . Alt. 10-11,000 ft. In flower, June 1910. G. Forrest 5968.

Lichiang Range. Lat.  $27^{\circ} 30' N$ . Alt. 10-11,000 ft. In flower, June 1913. G. Forrest 10135.

Lichiang Range. Lat.  $27^{\circ} 40' N$ . Alt. 11-12,000 ft. In flower, June 1913. G. Forrest 10270.

Without precise locality. Alt. 13,000 ft. In flower, 30th June 1913. F. K. Ward 615.

*Ranunculus vivace* tumescent. Fls. bleues. Pâturages des mont à Pé-long-tsin. Alt. 3,200 m. In flower. E. E. Maire (886-1914 Herb. Edin.).

Without precise locality. Yen Ching Shan? In flower, 1931. G. Forrest 30071.

Without precise locality. In flower, 1931. G. Forrest 30471.

Szechuan. Plant of 6-10 in. Flowers white, flushed blue on exterior. On open stony meadows. Mountains around Muli. Lat.  $28^{\circ} 12' N$ . Long.  $101^{\circ} E$ . Alt. 13,000 ft. In flower, July 1930. G. Forrest 28434.

This variety differs from the typical plant in the truncate or cordate, and not cuneate bases of the leaves. The leaves are more or less trilobed, but not trisect as in *A. Geum* Lévl., and in this respect intermediate between the latter and *A. coelestina*. This character is purely artificial, but seems to be the most definite one in an extremely variable group of plants.

*Anemone demissa* Hook. f. et Thoms. var. *chrysauges* Comber.  
Var. nov.

A typo floribus intense luteo-aurantiacis inter alia differt.

N.E. UPPER BURMA.—Very abundant in the alpine meadows, from the valley-floor to the pass. Chimili valley. Alt. 10,500–12,500 ft. In flower, 31st July 1919. R. Farrer 1145 (type of var.).

The small open glades along these highest arêtes seem curiously uncertain as to whether their *Anemone* shall be this, or the golden *A. obtusiloba*. The two, however, do not seem to occur together, though each is profuse in its own place. The golden species belongs to the western, Burmese wall of the range: the white to the Chinese (occasionally varying to pale lemon). Chawchi Pass, etc. Alt. 12,000 ft. In flower, 3rd July 1920. R. Farrer 1689.

By the acre of tossing golden splendour in all the open high-alpine grass-glades, exclusively (as yet) on the western face of the range; on the eastern, in equal abundance, it is replaced by *A. narcissiflora*. Its colour can vary to paler tones, but the richest yellow is the rule. Chawchi Pass. Alt. 13,000 ft. In flower, 9th July 1920. R. Farrer 1711.

Cushion plant of 3–5 in. Foliage silvery. Flowers bright orange-yellow. Open moist stony alpine meadows. Western flank of the Chimili. N'Maikha-Salwin divide. Lat. 26° 23' N. Long. 98° 48' E. Alt. 11–12,000 ft. In flower, June 1924. G. Forrest 24650.

Tufted plant of 4–8 in. Flowers bright orange-yellow. On stony alpine pastures. Western flank of the N'Maikha-Salwin divide. Lat. 26° 24' N. Long. 98° 48' E. Alt. 11–12,000 ft. In flower, June 1925. G. Forrest 26858.

Without precise locality. In fruit, October 1925. G. Forrest 27305.

Duplicate of F. 26858. In fruit, October 1925. G. Forrest 27319.

Tufted plant of 6–12 in. Flowers deep orange-yellow. On stony alpine meadows and ledges of cliffs. N'Maikha-Salwin divide. Lat. 26° 30' N. Alt. 12,000 ft. In flower, June 1931. G. Forrest 29776.

Without precise locality. In flower (14 in. tall). G. Forrest 29865.

Flowers bright yellow. In deep shady places in grass under the dwarf bamboo brake, and in more open places on the cliffs, screes, etc. Ridge of the Naung-chaung-Nwai divide. Alt. 12–13,000 ft. In flower, 16th July 1914. F. K. Ward 1814.

Flowers very bright golden yellow. On open slaty cliffs and grassy slopes at the summit of the ridge. Paijawng Bum. Alt. 11–12,000 ft. In flower and young fruit, 31st July 1919. F. K. Ward 3437.

The very striking flowers of this variety, and the prominent encircling mass of the old leaf bases, separate it from the pink and white flowered forms from the same area. It is noteworthy that it often occurs in isolated colonies unmixed with other varieties.

***Anemone demissa*** Hook. f. et Thoms. var. ***fissisepala*** Comber. Var. nov.

A typo sepalis exterioribus apice 2–4-dentatis, foliis minoribus differt.

N.E. UPPER BURMA. Plant of 4-9 in. Flowers deep purple-blue throughout. Ledges and crevices of cliffs and on stony meadows. Western flank of the N'Maikha-Salwin divide. Lat. 26° 24' N. Long. 98° 48' E. Alt. 12-13,000 ft. In flower, June 1925. G. Forrest 26894 (type of var.).

This peculiar variety is characterised by its markedly toothed outer sepals, and by the small leaves but little more than an inch in diameter.

**Anemone Geum** Lévl. in Bull. Géogr. Bot. xxv (1915), 25.

*A. Bonatiana* Lévl. var. *Geum* Lévl. Plantes des Yunnan (1915-17), 219.

*A. ovalifolia* (Brühl) Hand.-Mazz. in Symb. Sin. vii (1931), 315.

The type of *A. Geum* agrees exactly with a specimen (1757) quoted by Dr. Handel-Mazzetti l.c. as *A. ovalifolia*. Both are in the Edinburgh Herbarium.

**Anemone Geum** Lévl. var. *multisecta* Comber. Var. nov.

*A typo foliis bi- vel tri-ternatis, segmentis angustioribus differt.*

W. CHINA.—Yunnan. Plant of 2-3 in. Flowers white. Open moist stony pasture. Kari Pass, Mekong-Yangtze divide. Lat. 27° 40' N. Alt. 12,000 ft. In flower, August 1914. G. Forrest 13018 (type of var.).

Szechuan. Inter Woloko et Choso, in dumetis, fl. dilute violacei v. albi. Alt. 2,900 m. In flower, 13th June 1914. C. K. Schneider 1583.

The specimens of *A. Geum* Lévl. in the Edin. Herb. are variable, but none approach these two in the degree of division of the leaf. All forms of this species bear leaves which are trisect, while some show considerable secondary lobing of the segments, but in the present variety the primary segments themselves are completely trisect, and frequently the secondary segments are again divided to the base.

**Arenaria ionandra** Diels var. *melanotricha* Comber. Var. nov.

*A. napuligera* Notes Roy. Bot. Gard. Edin. xvii (1929), 124, non Franch.

*A. napuligera* Fr. vel aff. l.c. xiv (1924), 183.

*A typo sepalis distincte nigro-glandulosis differt.*

W. CHINA.—Yunnan. Plant of 6-10 in. Flowers white. Moist chalky pasture. Eastern flank of the Lichiang Range. Lat. 27° 35' N. Alt. 11,000 ft. In flower, September 1910. G. Forrest 6509 (type of var.).

Plant of 1-2 in. Flowers rose-pink. Open stony pasture and on ledges of cliffs. Lei-lung Shan. Lat. 28° 10' N. Alt. 14,000 ft. In flower, August 1917. G. Forrest 15191.

Without precise locality. In flower, 1931. G. Forrest 30796.

Without precise locality. In flower, 20th Sept. 1923. J. F. Rock 10836.

Szechuan. Plant of 2-5 in. Flowers pink or white flushed pink.



Open dry pasture. Mountains east of Yungning. Lat.  $27^{\circ} 50'$  N. Long.  $100^{\circ} 56'$  E. Alt. 9-10,000 ft. In flower, August 1921. G. Forrest 20571.

This variety differs from the type in having glandular hairy sepals, and usually a taller, more branching habit. It has hitherto been recorded under *A. napuligera* Fr., which it closely resembles, but it differs in having two styles, and in the absence of a perennial napiform root.

***Astragalus Ernestii* Comber. Nom. nov.**

*A. Wilsonii* N. D. Simpson in Notes Roy. Bot. Gard. Edin. viii (1915), 248, non *A. Wilsonii* Greene in Pittonia iii (1897), 196.

W. CHINA.—Flowers yellowish. Grasslands. Alt. 3,900-4,200 m. July 1903. Wilson 3440. Herb. Kew (type). Ex Simpson.

Szechuan. Tongolo, Soulié 303. Tatsien-lu. Soulié 560. Ex Simpson.

Yunnan. Plant of 6-8 in. Flowers greenish-yellow. Open stony pasture. Mountains in the north-east of the Yangtze bend. Lat.  $27^{\circ} 45'$  N. Alt. 11,000 ft. In flower, July 1913. G. Forrest 10363.

Without precise localities. In flower. G. Forrest 28863, 30605.

As the name *A. Wilsonii* had been used in the genus prior to N. D. Simpson's description of this species the name is invalid. *A. Ernestii* is substituted as the most suitable one to maintain E. H. Wilson's association with this plant.

***Buddleia Delavayi* Gagnep. var. *tomentosa* Comber. Var. nov.**

*B. Delavayi* Notes Roy. Bot. Gard. Edin. vii (1930), 151 and 319.

*B. Delavayi* Marq. in Kew Bull. 1930, 197 p.p.

A typo ovario tomentosum, foliis minus pubescentibus differt.

CHINA.—Yunnan. Shrub of 6 ft. Flowers lilac-rose. In open scrub. Shweli-Salwin divide. Lat.  $25^{\circ} 30'$  N. Alt. 10,000 ft. In flower, June 1927. G. Forrest 15664 (type of var.).

Shrub of 6-9 ft. Flowers rose-lavender (?), faded when collected. Amongst scrub by streams. N'Maikha-Salwin divide. Lat.  $26^{\circ} 30'$  N. Alt. 8,000 ft. In fruit, July 1919. G. Forrest 18199.

Differences other than those noted are the rather larger flowers, leaves, and fruits.

***Buddleia tibetica* W. W. Sm. var. *truncatifolia* (Lévl.) Marq. in Kew Bull. 1930, 205.**

*B. truncatifolia* Lévl. in Fedde Repert. xiii (1914), 342.

*B. incompta* W. W. Sm. in Notes Roy. Bot. Gard. Edin. viii (1914), 180, non Linn. f.

*B. Farreri* l.c. xvii (1929), 24 et 40, non Balf. f. et W. W. Sm.

*B. acosma* Marq. in Kew Bull. 1930, 187 p.p.

*B. tibetica* W. W. Sm. var. *glandulifera* Marq. in Kew Bull. 1930, 206.

W. CHINA.—Yunnan. Arbuste cassant, feuilles laineuses charnues blanches. Fl. roses (rare). Haies vallons de Kiao-tche-Keou. Alt. 2550 m. In flower, April 1913. E. E. Maire (without number) (type of *B. truncatifolia* Lévl.).

Shrub of 6-9 ft. Open thickets. Western flank of the Tali Range. Lat. 25° 40' N. Alt. 10,000 ft. Foliage only, August 1913. G. Forrest 11528.

Shrub of 6-9 ft. In open situations amongst rocks. Mekong-Yangtze divide. Lat. 27° 40' N. Alt. 10,000 ft. In fruit, July 1914. G. Forrest 12852.

Shrub of 4-9 ft. Flowers fragrant, greyish-rose. Open dry situations. Chungtien plateau. Lat. 27° 45' N. Alt. 11,000 ft. In flower, June 1917. G. Forrest 13871 (type of *B. tibetica* var. *glandulifera* Marq.).

Shrub of 3-5 ft. Open slaty slopes. Arid region in the Mekong valley. Lat. 28° 30' N. Alt. 6,000 ft. Foliage only, June 1917. G. Forrest 14080.

Shrub of 2 ft. Flowers fragrant, soft grey-rose. Open dry situations in side valleys. Mekong-Salwin divide. Lat. 28° N. Alt. 7-8,000 ft. In flower, June 1918. G. Forrest 16557.

Shrub of 6-12 ft. Open dry stony hill-sides. Mekong-Yangtze divide. Lat. 27° 36' N. Long. 99° 10' E. Alt. 8-10,000 ft. In fruit, July 1921. G. Forrest 19659.

Shrub of 2 ft. On cliffs and dry rocky slopes. Mekong-Salwin divide. Lat. 27° 36' N. Long. 98° 50' E. Alt. 8,000 ft. In fruit, July 1921. G. Forrest 19665.

Shrub of 2-3 ft. Open dry rocky hill-side. Atuntze valley. Lat. 28° 30' N. Long. 98° 54' E. Alt. 10,000 ft. In fruit, September 1921. G. Forrest 20767.

Shrub of 4-9 ft. Flowers rose-lavender, fragrant. Open dry hill-sides amongst scrub. Chienchuan-Mekong divide. Lat. 26° 40' N. Long. 99° 40' E. Alt. 8-9,000 ft. In flower and fruit, July 1922. G. Forrest 23077.

Untidy shrub of 4-5 ft. In Mekong valley. In flower, June 1913. F. K. Ward 313.

Untidy bush of 3-6 ft. Leaves silver in spring, golden in autumn. On dry rocks and exposed hill-sides. In the Atuntze valley. Alt. 11,000 ft. In flower, June 1913. F. K. Ward 345 (type of *B. incompta* W. W. Sm. and *B. acosma* Marq.).

A close examination of the types of the plants mentioned above and of living plants in cultivation show that the differences ascribed to them by Marquand\* are such as one would expect on specimens collected at various times and in various habitats.

Such differences as axillary versus terminal inflorescences, shape, and toothedness of the leaves, round or quadrangular stems are inconstant.

\* Kew Bull. 1930, 180-181.

A well-developed plant in cultivation exhibits all these various characteristics.

The specimens quoted agree in the glandular corolla, always with a more or less sparse tomentum among the glands. The foliage is variable in shape, from cuneate to truncate or cordate on the same branch, and the differences in size between *B. acosma* Marq. and *B. tibetica* W. W. Sm. var. *glandulifera* Marq. are such as may be expected between leaves produced on weak flowering branches and those on young vigorous shoots. Further, the "leafy branches" of the key\* are not truly leafy, since the original leaves have dropped off, and those present are borne on young axillary shoots of the same age as the inflorescence.

In *B. tibetica* W. W. Sm. var. *truncatifolia* (Lévl.) Marq. the corolla is equally as glandular as in var. *glandulifera*, but is rather more tomentose, as also are the leaves. No good purpose is served by separating these, and as *truncatifolia* is the older name it takes precedence over the more suitable *glandulifera*.

It seems probable that *B. agathosma* Diels var. *glandulifera* Marq. also belongs to this variety, since it differs only in the elongated inflorescence. This character we know from allied plants in cultivation to be as variable as the leaves.†

*Buddleia tibetica* W. W. Sm. var. *grandiflora* Marq. in Journ. Linn. Soc. xlviii (1929), 202, is an older name which may ultimately have to be used for this group of plants, but K. W. 5635 (the first specimen quoted and therefore presumably Marquand's type) has glands on the corolla, very dense axillary inflorescences and no leaves. The first character is at variance with the key in Kew Bull. 1930. The second specimen quoted, K. W. 5693, has eglandular tomentose corollas, but differs in no other essential character from plants now included in *B. tibetica* var. *truncatifolia*. Forrest 18720, which resembles it in all except size, has been ascribed to *B. incompta* by Professor Sir William Wright Smith and to *B. acosma* by Marquand. If the glandular character is of importance, then these three specimens must belong to a new variety of *B. tibetica*. Until more complete material is available it seems premature to do more than note the existence of these

\* Kew Bull. 1930, 181.

† Kew Bull. 1930, 178, 179.

NOTE.—The *Buddleias* of this group in cultivation produce more or less vigorous branched vegetative shoots in early summer, which in late autumn ripen and shed most of their foliage. The tips of these shoots and their lateral branchlets retain a few leaves and remain in softer condition, and it is on these and in the upper leaf axils that the inflorescence buds are formed. The number of inflorescences depends upon the vigour of these shoots, varying from a small terminal one on a short weak simple shoot to many terminal and axillary ones on a strong or branched shoot.

The plant in cultivation in gardens as *B. caryopteridifolia* is referable to the present variety of *B. tibetica*, and not to *B. caryopteridifolia* W. W. Sm., which is late flowering, produces a well-defined racemose inflorescence terminating the current season's growth, and has much smaller flowers.

conflicting characters, especially as there are other allied species based on scanty material which may have to be taken into consideration.

***Celastrus hirsutus* Comber. Sp. nov.**

*Celastrus* sp. Notes Roy. Bot. Gard. Edin. xvii (1930), 268, 300, 347.

Species ex affinitate *C. Kusanoi* Hayata a quo foliis late ovatis vel obovatis hirsutis, cymis pedunculatis satis differt.

Frutex scandens 6-12 m. altus; ramuli teretes vel leviter compressi, circ. 4 mm. diam., striati vel plus minusve sulcati, distincte lenticellati, dense ferrugineo-pubescentes, deinde glabrescentes; gemmae ovoideae saltem 6 mm. longae. Folia membranacea, late ovata vel obovata, nunc subito et breve acuminata, nunc obtusa, basi rotundata vel late (interdum oblique) cuneata, crenato-serrulata dentibus incurvis purpureo-mucronulatis, 7-14 cm. longa, 4-10 cm. lata, supra praesertim ad nervos pubescentia, costa nervisque arcuatis 6-7-paribus infra hirsutis; petioli supra leviter canaliculati usque ad 3 cm. longi. Inflorescentiae axillares, longe pedunculatae, hirsutae, cymosae, 8-12-florae; sepalae late rotundata, circ. 1 mm. longae; pistilla 3-5 mm. longae, stylis crassis, stigmatibus conspicue 3-lobatis. Capsula 3-locularis, subglobosa, apiculata, aurea, circ. 7 mm. longa et lata, valvis transverse striatis; semina in quoque loculo bina, atrobrunnea; arilli ignei.

W. CHINA.—Yunnan. Scandent shrub of 15-25 ft. Flowers creamy-white. On scrub and trees on the margins of mixed forests. Shweli-Salwin divide. Lat. 25° 20' N. Alt. 7-8,000 ft. The flowers galled, July 1928. G. Forrest 17496.

Scandent shrub of 12-18 ft. Fruits green. On trees and scrub in thickets. Shweli-Salwin divide. Lat. 25° N. Alt. 8,000 ft. In young fruit, April 1919. G. Forrest 17961 (type).

Shrub of 20-30 ft. In open thickets by streams. N'Maikha-Salwin divide. Lat. 26° 30' N. Alt. 6-7,000 ft. The flowers galled, September 1919. G. Forrest 18571.

Shrub of 12-20 ft., weakly scandent. Flowers greenish-brown. Trailing over rocks in side valleys. Shweli-Salwin divide. Lat. 25° 45' N. Long. 98° 40' E. Alt. 8-9,000 ft. The flowers galled, June 1924. G. Forrest 24370.

Shrub of 20-40 ft. Flowers "immature," ruddy-green. In thickets and forests. Shweli-Salwin divide. Alt. 9,000 ft. The flowers galled, June 1924. G. Forrest 24586.

Without precise locality. In ripe fruit. G. Forrest 30414.

This species is easily distinguished from all others of the genus except *C. Kusanoi* Hayata by the densely pubescent leaves. From that species it differs in having longer leaves and long peduncles to the cymes.

**Clematis acuminata** DC. var. **multiflora** Comber. Var. nov.

A typo inflorescentia 10–20-flora, sepalis atque alabastris angustioribus et acutioribus, foliis latioribus pauci-dentatis differt.

W. CHINA.—Yunnan. Scandent shrub of 8–12 ft. Flowers creamy-yellow, tinged ruddy at base, fragrant. On scrub. Hills to the north-west of Tengyueh. Alt. 8,000 ft. In flower, December 1912. G. Forrest 9446.

Scandent shrub of 10–15 ft. Flowers creamy-white, tinged rose on exterior, fragrant. On trees in thickets. Hills south of Tengyueh. Lat. 25° N. Alt. 6,000 ft. In flower, February 1913. G. Forrest 9605.

Scandent shrub of 9–12 ft. Flowers very light canary yellow, fragrant. On scrub in open situations. Shweli valley. Lat. 25° 20' N. Alt. 7,000 ft. In flower, December 1913. G. Forrest 12129 (type of var.).

Scandent shrub of 10–20 ft. Flowers fragrant, perianth pure white, drying brown. In thickets in shady side valleys. Hills north-west of Tengyueh. Lat. 25° 40' N. Long. 98° 50' E. Alt. 8,000 ft. In flower, December 1914. G. Forrest 26153.

Scandent shrub of many feet. Flowers fragrant, dark brownish-yellow. In thickets. Shweli-Salwin divide. Lat. 25° 35' N. Long. 98° 40' E. Alt. 7–8,000 ft. In flower, March 1931. G. Forrest 29362.

White flowers. Szemao. Alt. 6,000 ft. In flower. A. Henry 13282.

Climber. West Mts. Szemao. Alt. 5,000 ft. In flower. A. Henry 11586 B.

West Mts. Szemao. Alt. 5,000 ft. In flower. A. Henry 11586 C.

Salwin valley from Latra to Saung-ta. Jungles. Alt. 5–7,000 ft. In flower, 1st January 1914. F. K. Ward, without no.

**Clematis chrysocoma** Franch. var. **glabrescens** Comber. Var. nov.

*Clematis montana* f. *grandiflora* Notes Roy. Bot. Gard. Edin. vii (1912), 18, 32, non Ham.

*Clematis montana* l.c., vii (1912), 111; xiv (1924), 265, 378, non Ham.

A typo habitu robustiore, foliis sparse vel sparsissime setosis differt.

CHINA.—Yunnan. Scandent shrub of 10–15 ft. Flowers fragrant, perianth white, pink, or reddish on exterior. On scrub on the margins of pine forests on the eastern flank of the Lichiang Range. Lat. 27° 15' N. Alt. 10,500 ft. In flower, May 1906. G. Forrest 2246 (type of var.).

Scandent shrub of 10–20 ft. Flowers white, exterior purplish. On scrub and trees in mixed forests. Eastern flank of the Lichiang Range. Lat. 27° 15' N. Alt. 10–11,000 ft. In flower, May 1910. G. Forrest 5609.

Scandent shrub of 6–20 ft. Flowers creamy-white, purplish on exterior. On scrub. Western flank of the Shweli-Salwin divide. Lat. 25° 20' N. Alt. 8,000 ft. In flower, August 1912. G. Forrest 8952.



Lichiang Range. Lat. 27° 40' N. Alt. 10-11,000 ft. In flower, June 1913. G. Forrest 10199.

Scandent shrub of 6-10 ft. Flowers white, flushed purple exterior. Open situations on scrub. Shweli-Salwin divide. Lat. 25° 30' N. Alt. 9,000 ft. In flower, June 1913. G. Forrest 11982.

Weakly scandent shrub of 8-12 ft. Flowers creamy-white, faintly flushed purple on exterior. On scrub on the margins of thickets. Chienchuan-Mekong divide. Lat. 26° 40' N. Long. 99° 40' E. Alt. 11,000 ft. In flower, July 1922. G. Forrest 21518.

Scandent shrub of 4-8 ft. Flowers creamy-white, faintly flushed purplish on exterior. On scrub by streams. Chienchuan-Mekong divide. Lat. 26° 40' N. Long. 99° 40' E. Alt. 12,000 ft. In flower, July 1922. G. Forrest 23118.

Scandent shrub of 6-9 ft. Flowers pure white. On scrub by streams and on the margins of thickets. Shweli-Salwin divide. Lat. 25° 30' N. Long. 98° 58' E. Alt. 11,000 ft. In flower, May 1924. G. Forrest 24295.

Without precise locality. In flower, 1931. G. Forrest 30725.

Without precise locality. In flower, 1907. C. Monbeig 2.

Rain forest undergrowth. Alt. 10,000 ft. In flower, 26th June 1913. F. K. Ward 552.

Climbing. Flowers white tinged pink. Yangtze watershed, western slopes of the Likiang Snow Range. Alt. 10-11,000 ft. In flower, May-June 1922. J. F. Rock 4139.

TIBET.—Flowers white, purple on exterior. On scrub in pine forests in the Lopa and Shupa valleys on the Yangtze-Mekong divide. Lat. 28° N. Alt. 11-12,000 ft. In flower, September 1904. G. Forrest 189.

Flowers white. Open situations on scrub on the Mekong-Salwin divide. Lat. 28° 10' N. Alt. 9-11,000 ft. In flower, September 1904. G. Forrest 416.

UPPER BURMA.—Along the ground or up in trees or on bamboo-canes. Flowers large, of a cold white, and finer, I think, than those of *C. Spooneri*. Shing Hong Pass. Alt. 9-10,000 ft. In flower, 6th June 1920. R. Farrer 1605.

Sprawling among fallen tree-trunks on slope studded with very big ancient hemlock spruces. Hpimaw Hill. Alt. 9,000 ft. Flowers white, 23rd April 1919. R. Farrer 871.

SIKKIM.—White flowered. Climbing in mixed forests. Karponang. Alt. 9,000 ft. In flower, 15th August 1913. R. E. Cooper 498.

Schneider in New Chinese Plants in Bot. Gaz. lxiii (1917), 517, draws attention to a form of *C. chrysocoma* with sparsely setose leaves. Handel-Mazzetti in Symb. Sin. vii (1913), 321, regards it as possibly a new variety. In Forrest's collections there is ample material, and it is considered that it should be definitely separated as a variety from the densely pilose-typical form. Schneider No. 1928 and Handel-Mazzetti No. 4090 should, from their descriptions, be included in this variety.

**Clematis fasciculiflora** Franch. var. **angustifolia** Comber. Var. nov.

A typo foliis minoribus, foliolis angustioribus, lateralibus lobatis, acheniis latoribus pallide brunnescentibus differt.

CHINA.—Yunnan. Scandent shrub of 6–12 ft. On scrub in open situations. Mountains in the north-east of the Yangtze bend. Lat. 27° 45' N. Alt. 10,000 ft. In fruit, July 1913. G. Forrest 10573 (type of var.).

This variety differs from the type by its smaller leaves, with narrower leaflets, the lateral ones with a small lobe on the outer edge, and by the shorter, broader fruits which are pale brown, not black.

**Delphinium Georgei** Comber. Sp. nov.

Species valde affinis *D. pycnocentro* Franch. a quo foliis et lobis latoribus, floribus brevioribus atro-caeruleis, petalis superioribus interdum parce setosis vel ciliolatis, calcaribus subfalcatis, petalis lateralibus profunde bilobatis, carpellis glabrescentibus differt.

Herba perennis 0.9–1.35 m. alta. Caulis erectus, fistulosus, angulosus, glaber, purpureo-glaucescens, basi circ. 6 mm. diam. Folia basalia desunt; caulina numerosa, sparse pubescentia, in sicco supra flavida, infra albida, petiolo 12–16 cm. longo; inferiora usque ad 8 cm. longa, 15 cm. lata, ambitu oblata, 5-palmatifida, lobis rhomboideo-cuneatis, interioribus trilobulatis, exterioribus bilobulatis, lobulis inaequaliter et grosse crenato-dentatis apiculatis; superiora pauca, alte 5-fida, lobis anguste lineari-lanceolatis vel pauci-dentatis ad marginem manifeste caeruleo-tinctis. Inflorescentia laxa, simplex vel parce ramosa circ. 30 cm. longa, circ. 20-flora, rhachide tenui glabra striata. Flores atro-caerulei; pedicelli gracillimi 2.3–6 cm. longi; bractee anguste lineari-lanceolatae, 0.5–1 cm. longae; bracteolae binae, subulatae, inconspicuae, suboppositae, pedicellorum apices versus dispositae. Sepali posterioris crispule pubescentis limbus circ. 1.5 cm. longus, 1 cm. latus, ovatus, acutiusculus, calcare circ. 2.2 cm. longo subulato subfalcato. Sepala lateralialia oblanceolata, circ. 1.7 cm. longa, 5 mm. lata, glabra nervis mediis elevatis pubescentibus exceptis, inferiora plus minusve elliptica, circ. 2 cm. longa, 6 mm. lata, crispe pubescentia. Petala superiora plerumque glabra, circ. 3 cm. longa; limbi oblique truncati emarginati raro sparse setosi, nunc apice ciliati, calcaribus subfalcatis subulatis limbos duplo superantibus; inferiora securiformia, limbo bilobato apice albo-ciliato ad medium luteo-barbato; unguis 6 mm. longus, sparse albido-hirsutus, appendice uncinata munitus. Filamenta filiformia basim versus alata; antherae oblongae. Carpella 3, glabra vel parcesime setosa, stylis aequilonga.

W. CHINA.—Yunnan. Plant of 3–4½ ft. Flowers deep blue. Open stony pasture. On the Tong Shan in the Yangtze bend. Lat. 27° 20' N. Alt. 11–12,000 ft. In flower, September 1913. G. Forrest 11353 (type).

This species is closely related to *D. pycnocentrum* Franch., from which it may be distinguished by the larger leaves with broader lobes, the

shorter deep-blue flowers, the spur bent to a right angle, the lateral petals deeply bilobed, and the glabrescent carpels.

***Delphinium pediforme* Comber. Sp. nov.**

*Delphinium* sp. Notes Roy. Bot. Gard. Edin. xvii (1929), 106.

*D. Bulleyanum* G. Forrest vel aff. Notes Roy. Bot. Gard. Edin. xvii (1929), 250.

*D. Bulleyanum* Notes Roy. Bot. Gard. Edin. xvii (1929), 377, non Forrest.

Species valde affinis *D. Delavayi* Franch. et *D. pogonantho* Hand.-Mazz. a quibus floribus majoribus, calcaribus recurvatis differt. Ab hoc floribus haud nutantibus, bracteolis e basi pedicellorum enatis recedit.

Herba perennis 0.6-0.9 m. alta. Caulis erectus, fistulosus, striatus, parce setosus, circ. 6 mm. diam. Folia basalia desunt; caulina circ. 5, supra sparse setosa, infra praecipue ad nervos hispida; inferiora ambitu rotundata, circ. 12 cm. lata, 5-7-palmatifida, segmentis trilobatis vel inaequaliter bilobatis acutis, lobis inaequaliter dissectis, lobulis ultimis anguste acutis, petiolo usque ad 24 cm. longo suffulta; superiora circ. 6 cm. longa, 9-12 cm. lata, 5-palmatifida, segmentis rhomboideo-cuneatis acutis inaequaliter crenato-dentatis haud profunde incis, petiolo subnullo vel ad 2 cm. longo. Inflorescentiae 20-30 cm. longae, 10-15-florae, simplices vel ad basim ramosae, pilis diversis et erectis bulbosis flavidis et decurvatis albis dense obsitae; ramuli 1-3, erecti, 11-15 cm. longi, 4-7-flori; bractae lineares vel subulatae, hispidae, usque ad 1.5 cm. longae. Flores speciosi, purpureo-caerulei, pedicellis erectis 2.5-4.5 cm. longis bibracteolatis. Sepala ovata, circ. 2 cm. longa, 1 cm. lata, fere acuminata (in alabastris abrupte incurva) extra sparse pilosa; posterius usque ad basim recurvum calcare limbum paulo superante. Petala superiora glabra, limbo oblique truncato integro vel emarginato, quam calcar duplo brevior; lateralia securiformia, bilobata, glabra vel parce setosa (margine ciliata excepta); unguis pilosi, basi appendicibus minutis aucti. Filamenta filiformia, glabra, basin versus alata; antherae oblongae. Carpella 3, sparse setosa, stylis sub anthesi subduplo brevioribus, apicibus minute bifurcatis, circ. 2 cm. longa, 5 mm. lata. Semina nigra, squamis numerosis undulatis dense oblecta.

W. CHINA.—Yunnan. Plant of 2-2½ ft. Open rocky pasture by streams. Mekong-Salwin divide. Lat. 28° N. Alt. 12,000 ft. In fruit, September 1917. G. Forrest 14929.

Plant of 2-3 ft. Flowers deep blue-purple. By streams. Mekong-Salwin divide. Lat. 28° 10' N. Alt. 12,000 ft. In flower, October 1918. G. Forrest 17187 (type).

TIBET.—Plant of 2-2½ ft. Flowers deep bluish-purple. Open stony pasture and on the margins of thickets. Salwin-Kiuchiang divide. Lat. 28° 40' N. Long. 98° 15' E. Alt. 11,000 ft. In flower, August 1919. G. Forrest 19031.

This species is near to *D. Delavayi* Franch. and *D. pogonanthum* Hand.-Mazz., but differs from both in the larger flowers and curved spurs. From the latter it also differs in its horizontal flowers.

The specific name *pediforme* is an allusion to the shape of the spur, which almost exactly resembles the conventional shepherd's crook.

**Euonymus amygdalifolia** Franch. in Bull. Soc. Bot. Fr. xxxiii (1886), 453.

*E. roseoperulata* Loes. in Notes Roy. Bot. Gard. Edin. viii (1913), 1; et vii (1912), 266.

*E. taliensis* Loes. l.c. viii (1913), 3; vii (1912), 270; et xvii (1930), 156, 269, 302.

*E. sp.* l.c. xvii (1930), 358.

*E. porphyrea* l.c. xiv (1924), 274, non Loes.

*E. sp. aff. amygdalifolia* Fr. l.c. xiv (1924), 365.

W. CHINA.—Yunnan. Shrub of 6–12 ft. Flowers green. Thickets in side valleys on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 8–9,000 ft. In bud, May–June 1906. G. Forrest 4756 (type of *E. roseoperulata* Loes.).

Shrub of 4–8 ft. Flowers deep purple. Open rocky situations among scrub on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 8–10,000 ft. In flower, June–July 1906. G. Forrest 4798b (type of *E. taliensis* Loes.).

Shrub of 12–20 ft. In fruit. In thickets. Western flank of the Shweli-Salwin divide. Lat. 25° 20' N. Alt. 8–9,000 ft. Foliage only, August 1912. G. Forrest 9002.

Shrub of 8–12 ft. Flowers dull crimson. In shady thickets. Shweli-Salwin divide. Lat. 25° 30' N. Alt. 9,000 ft. In young flower, August 1917. G. Forrest 15752.

Shrub of 20–25 ft. Flowers maroon-crimson. In open thickets. Shweli-Salwin divide. Lat. 25° 12' N. Alt. 9,000 ft. In flower, June 1918. G. Forrest 17511.

Shrub of 10–25 ft. Flowers purple-maroon. Thickets in side valleys. N'Maikha-Salwin divide. Lat. 26° 10' N. Alt. 10,000 ft. In flower, June 1919. G. Forrest 17989.

Without precise locality. November 1919. G. Forrest 18799.

Without precise locality. November 1919. G. Forrest 18800.

Shrub of 12–20 ft. Flowers dark greenish-purple. In thickets by streams in side valleys. Chienchuan-Mekong divide. Lat. 26° 30' N. Long. 99° 20' E. Alt. 11,000 ft. In flower, June 1923. G. Forrest 23435.

Shrub of 20–25 ft. Flowers deep greenish-maroon. In open thickets by streams. Shweli-Salwin divide. Lat. 25° 30' N. Long. 98° 58' E. Alt. 9–10,000 ft. In flower, May 1924. G. Forrest 24268.

Shrub of 10 ft. Seeds bright vermilion-scarlet. In open thickets by streams. Mekong-Yangtze divide, east of A-wa. Lat. 27° 25' N.

Long. 99° 18' E. Alt. 10,000 ft. In fruit, October 1924. G. Forrest 25948.

Shrub of 20-25 ft. Flowers dull purplish-crimson. In open thickets. Shweli-Salwin divide, north of Ho-tou. Lat. 25° 50' N. Long. 98° 47' E. Alt. 10,000 ft. In flower, June 1925. G. Forrest 26727.

Tali Range: In fruit, August 1929. G. Forrest 28032.

Without precise locality. In fruit, 1930. G. Forrest 29061.

3 m. high. Kou-ty. In flower, April 1917. S. Ten 428.

3 m. high. Kou-ty. In flower, May 1918. S. Ten 547.

TIBET.—Shrub of 7-10 ft. Flowers pale dull greenish-purple. Amongst scrub by streams. Salwin-Kiuchiang divide. Lat. 28° 16' N. Long. 98° 30' E. Alt. 11,000 ft. In flower, June 1922. G. Forrest 21614.

Without precise locality. In fruit. G. Forrest 22945.

UPPER BURMA.—Flowers dull red. In alpine forest to the upper region, to the tops. Hpimaw Ridge. Alt. 10-12,000 ft. In flower, 22nd June 1919. R. Farrer 1042.

Small tree of the alpine woodland, with small maroon flowers so numerous as to make quite an effect. Chawchi Pass. Alt. 9,000 ft. In flower, June 1920. R. Farrer 1663.

Shrub of 10-20 ft. Flowers purple-red. In thickets in side valleys. N'Maikha-Salwin divide. Lat. 26° 30' N. Alt. 10,000 ft. In flower, June 1931. G. Forrest 29667.

Lax shrub of 5-10 ft. Flowers dull red. Forest, Htawgaw, valley of Naung-chaung, Lashi country. Alt. 9-10,000 ft. In flower, 21st May 1914. F. K. Ward 1580.

An examination of the type of *E. amygdalifolia* Franch., which has kindly been lent by the Director of the Paris Museum, has been of service in correcting some previous mis-identifications. The confusion seems to have arisen from the fact that pentamerous plants were wrongly assumed to be *E. amygdalifolia* Fr., with the consequence that tetramerous ones were considered to be *E. taliensis* Loes.

The type of *E. taliensis* is identical with that of *E. amygdalifolia*. At the same time there is no doubt but that the type of *E. roseoperulata* Loes. is nothing more than a younger stage (in bud) of the same species. Nor is *E. amygdalifolia* itself far removed from *E. frigidus* Wall. and *E. cornuta* Hemsl., but ampler material of these is necessary for a final opinion.

***Euonymus clivicola*** W. W. Sm. in Notes Roy. Bot. Gard. Edin. x (1917), 31.

*E. rongchuensis* Marq. et Shaw in Journ. Linn. Soc. xlviii (1929), 168.

*E. amygdalifolia* Notes Roy. Bot. Gard. Edin. vii (1912), 270; xiv (1924), 103, 268, 293; xvii (1930), 224, non Franch.



*E. sanguinea* Notes Roy. Bot. Gard. Edin. vii (1930), 373, non Loes.

CHINA.—Yunnan. Shrub of 4-8 ft. Flowers deep purple. Open, rocky situations among scrub on the eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 8-10,000 ft. In flower, June-July 1906. G. Forrest 4798a.

Shrub of 20-30 ft. Flowers green. In open thickets. On the Tong Shan. Lat. 27° 20' N. Alt. 9,000 ft. In flower, July 1914. G. Forrest 12690 (type).

Shrub of 10-20 ft. Flowers deep purple. In thickets by streams. On the Ka-gwr-pu, Mekong-Salwin divide. Lat. 28° 40' N. Alt. 10,000 ft. In flower, August 1918. G. Forrest 16773.

Shrub of 12-25 ft. Flowers deep crimson. In open thickets. Salwin-Kiuchiang divide. Lat. 28° 40' N. Long 98° 15' E. In flower, July 1919. G. Forrest 18980.

Shrub of 20-25 ft. Flowers pale ruddy purple. Shady thickets by streams in side valleys. Mekong-Salwin divide. Lat. 27° 54' N. Long. 98° 50' E. Alt. 9-10,000 ft. In flower, July 1921. G. Forrest 19635.

Shrub of 12-18 ft. In thickets by streams. Chienchuan-Mekong divide. Lat. 26° 30' N. Long. 99° 40' E. Alt. 10,000 ft. In young fruit, July 1922. G. Forrest 21544.

Shrub of 20-30 ft. In open thickets in side valleys. Chienchuan-Mekong divide. Lat. 26° 30' N. Long. 99° 40' E. Alt. 10-11,000 ft. In fruit, August 1922. G. Forrest 22025.

Widely branched tree of 20-30 ft. Flowers deep maroon. In mixed thickets in side valleys. Chienchuan-Mekong divide. Lat. 26° 30' N. Long. 99° 20' E. Alt. 10-11,000 ft. In flower, June 1923. G. Forrest 23426.

Small tree of 5-10 ft. Forest. Alt. 11,000 ft. Also at A-tun-tsu. Damp shady slopes. Alt. 13,000 ft. In flower, 1913. F. K. Ward 404.

TIBET.—Slim shrub of 6-8 ft., lolling over. Flowers chocolate red. In *Picea* forest. Rong-chu, Tumbatse. Alt. 13,000 ft. In flower, 16th June 1924. F. K. Ward 5791 (type of *E. rongchuensis* Marq. et Shaw).

Small tree or shrub 15-20 ft. In *Rhododendron* forest among bamboos. Flowers dull red, over. Tang-la. Alt. 12,000 ft. In flower, 18th July 1924. F. K. Ward 5951.

Although *E. clivicola* W. W. Sm. is stated by Forrest to have had green flowers, the purple-flowered *E. rongchuensis* Marq. et Shaw is in all other respects identical with it. All the other specimens quoted have purple flowers.

***Euonymus cornuta*** Hemsl. in Kew Bull. 1893, 209.

*E. cornutoides* Loes. in Notes Roy. Bot. Gard. Edin. viii (1913), 2 ; vii (1912), 193.

W. CHINA.—Yunnan. Spreading shrub of 6–12 ft. Fruit and capsule bright scarlet. Shady rocky situations in pine woods on the slopes of the Salwin-Irrawadi divide. Ku-Tan-Ho valley. Lat. about 26° N. Alt. 9–10,000 ft. In ripe fruit, November 1905. G. Forrest 1088.

Shrub of 6–10 ft. Flowers livid green. Shady situations in mixed forests on the eastern flank of the Lichiang range. Lat. 27° 25' N. Alt. 10–11,000 ft. In flower, October 1906. G. Forrest 3094 (type of *E. cornutoides* Loes.).

Shrub of 10–15 ft. Flowers livid maroon. In thickets. Eastern flank of the Tali Range. Lat. 25° 40' N. Alt. 9–10,000 ft. In flower, July 1910. G. Forrest 7275.

Shrub of 12–18 ft. Flowers green, or occasionally faintly tinged purple. In open thickets. N'Maikha-Salwin divide. Lat. 26° 30' N. Alt. 8,000 ft. In young fruit, July 1919. G. Forrest 18197.

Shrub of 12–20 ft. Flowers dull purple. In thickets and mixed forests. Shweli-Salwin divide. Lat. 25° 10' N. Long. 98° 45' E. Alt. 9,000 ft. In flower, April 1921. G. Forrest 19356.

Shrub of 6–9 ft. Flowers pale purple. Amongst scrub on rocky slopes in side valleys. Chienchuan-Mekong divide. Lat. 26° 20' N. Long. 99° 20' E. Alt. 10,000 ft. In flower, June 1923. G. Forrest 23485.

Shrub of 6–12 ft. Flowers purplish-green. In open thickets. Shweli-Salwin divide. Lat. 25° 30' N. Long. 98° 58' E. Alt. 10–11,000 ft. In flower, May 1924. G. Forrest 24292.

Shrub of 6–8 ft. Amongst scrub on bouldery slopes in side valleys. Shweli-Salwin divide. Lat. 25° 45' N. Long. 98° 58' E. Alt. 10,000 ft. In immature fruit, September 1924. G. Forrest 25219.

Shrub of 6–9 ft. Flowers immature, green. In thickets by streams. Shweli-Salwin divide. North of Hou-tou. Lat. 25° 50' N. Long. 98° 45' E. Alt. 9–10,000 ft. Foliage only, March 1925. G. Forrest 26244.

Frutex erectus 1–2 m. silvis Tchoan ouan Ho, Tie So, circa Pe Yen Tsin. In young fruit, 28th June 1916. S. Ten 187.

N.E. UPPER BURMA.—Shrub of 6–10 ft. Open situations on rocky slopes in side valleys. Western flank of the Chimili, N'Maikha-Salwin divide. Lat. 26° 23' N. Long. 98° 48' E. Alt. 10–11,000 ft. In young fruit, September 1924. G. Forrest 25057.

From information kindly supplied by Mr. C. E. C. Fischer it is learnt that the original three specimens of *E. cornuta* Hemsl. fall into two groups. Two specimens including the type, have 4-merous flowers and fruits, whereas the other has 5-merous fruits, and is now described as a distinct species, *E. quinquecornuta* Comber.

A comparison of Loesener's type of *E. cornutoides* with specimens he considered to be *E. cornuta* Hemsl. and many others subsequently collected, shows that his main differences of accessory secondary axes of the inflorescence and size of flowers are unimportant. Some flowers of *E. cornutoides* measure as much as 1.3 cm. in diameter—more than

those of *E. cornuta* !—and also vary from the livid green of the type to dull purple. Mr. Fischer considers the main difference between the two type specimens to lie "in the margin and serrature of the leaves," but our specimens quoted above show considerable variation in this respect, in nowise connected with the variations of the inflorescence, so this can scarcely be regarded as a good specific character.

***Euonymus Forrestii* Comber. Sp. nov.**

Species ex affinitate *E. pygmaeae* W. W. Sm. sed habitu pendulo, ramulis gracilioribus, foliis latioribus basi rotundatis vel truncatis haud cuneatis, pedunculis longioribus differt.

Frutex 1 m. altus glaber. Ramuli graciles teretes pauci-lenticellati viridescentes, hornotini 1.5 mm. diam., quadrimi 3 mm. diam. Folia persistentia vel subpersistentia, chartacea, ovata, 5.5–9.5 cm. longa, 2.5–4.5 cm. lata, vix acuminata, basi truncata vel rotundata, margine dense serrulata, serrulis obtusis incurvis, supra viridescencia, infra pallidiora, nervis venulisque utrinque prominulis flavidis manifeste reticulatis. Inflorescentia 2-3-chotoma, pedunculo 2.5–4.5 cm. longo. Flores tetrameri virides, pedicellis 0.6–1 cm. longis. Sepala late semi-orbicularia circ. 1.5 mm. longa, 2 mm. lata. Petala ut videntur rotundata circ. 3 mm. diam. Filamenta brevissima; antherae subreniformes. Stylus subconicus. Fructus ignotus.

W. CHINA.—Yunnan. Shrub of 3–4 ft. Branches pendulous. Flowers green. In side valleys in very shady thickets. Hills south of Tengyueh. Lat. 25° N. Long. 98° 30' E. Alt. 7,000 ft. In flower, April 1925. G. Forrest 26318 (type).

"In bambusreichen Tannenwäldern der ktp. St. des birm. Mons. an der Westseite Passes Tschiangschel zwischen Salwin und Irrawadi, 27° 52', Glimmerschiefer, 3,500–3,800 m., 5 VII, 1916 (9388)," Handel-Mazzetti. Teste Hand.-Mzt. in Symb. Sin. vii (1933), p. 663.

This species differs markedly from its immediate allies by its leaf shape and long-peduncled green flowers. Also the slender branches and pendulous habit are so well marked that they can scarcely be attributed to the plant's habitat alone. These characters render the plant easily distinguishable from its near relative *E. pygmaea* W. W. Sm.

***Euonymus Georgei* Comber. Sp. nov.**

*E. salicifolia* vel aff. Notes Roy. Bot. Gard. Edin. xvii (1930), 184.

Species ex affinitate *E. pendulae* Wall. sed pedunculis tenuioribus paucifloris differt.

Frutex glaber, 3–7 m. attingens. Ramuli tenues, quadrati, annotini 1.5 mm. diam., virides, leviter striati, internodiis ad 5 cm. longis. Folia persistentia, opposita, lanceolata, elliptica vel oblanceolata, 6–10 cm. longa, 1.5–3 cm. lata, nisi ad basim dense serrulata, serrulis inaequalibus acutis subincurvis, apice manifeste acuminata, basi in petiolum brevem

plus minusve alatum attenuata. Pedunculi tenuiores, 1-2.5 cm. longi, 1-3-flori; bracteae subulatae, 2-3 mm. longae, sparse nigro-glandulosae; pedicelli breves, circ. 3 mm. longi. Flores 4-meri, virides, circ. 9 mm. diam. Sepala late semiorbicularia, circ. 1.2 mm. longa, 3 mm. lata, fimbriata. Petala rotundata vel late ovata, circ. 3 mm. et longa et lata. Filamenta brevissima; antherae subreniformes. Discus circ. 3 mm. diam. Ovarium truncato-conicum stylo brevissimo. Fructus ignotus.

W. CHINA.—Yunnan. Shrub of 10-18 ft. Flowers green. In open thickets. Rare! Shweli-Salwin divide. Lat. 25° N. Alt. 9,000 ft. In flower, April 1918. G. Forrest 16241 (type).

The foliage of this species much resembles that of *E. pendula* Wall., but the inflorescence is few flowered, and the flowers are much larger, with green petals. In many respects it approaches *E. rostrata* W. W. Sm., but that species is 5-merous, not 4-merous.

***Euonymus quinquecornuta* Comber. Sp. nov.**

*E. cornuta* Hemsl. in Kew Bull. Misc. Inform. 1893, 209, pro parte floribus pentameris.

*E. cornuta* Loes. in Bot. Jahrb. xxix (1900), 441; xxx (1902), 458 p.p.

*E. cornuta* Loes. et Rehd. in Sarg. Pl. Wils. i (1913), 489 p.p.

Species *E. cornutae* Hemsl. similis sed floribus fructubusque pentameris valde differt; affinis *E. clivicolae* W. W. Sm. a qua foliis longioribus et angustioribus recedit.

Frutex glaber, ad 5 m. attingens. Ramuli tenues, striati, subangulati, hornotini circ. 1.5 diam. flavo-virides, quadrimi circ. 3 mm. diam. fusco-cinerei. Folia decidua vel semi-persistentia, membranacea vel tenuiter coriacea, lineari-lanceolata, usque ad 15 cm. longa, 1.6 cm. lata, apice acutissime acuminata, margine paulo recurvata, serrulis parvis apiculatis, basi cuneata, petiolo 0.4-1 cm. longo. Inflorescentiae cymosae, 1-7-florae; pedunculi tenues, 2.5-6.5 cm. longi, ex axillis bractearum et foliorum inferiorum orti. Flores pentameri, circ. 1 cm. diam. Sepala late semi-orbicularia, circ. 1 mm. longa, 2.5 mm. lata, margine scariosa, fimbriata. Petala ut videntur rotundato-ovata, circ. 3.5 mm. longa et lata. Filamenta brevissima; antherae subreniformes. Ovarium subconicum, stylo brevi. Discus vix 3 mm. diam. quinquelobatus. Fructus pentamerus, anguste et longe alatus (teste collectore) coccineus. Semina complanato-ovoidea castanea, circ. 5 mm. longa, 3.5 mm. lata, arillo inclusa.

W. CHINA.—Yunnan. Shrub of 15 ft. Fruits scarlet. In open thickets. Mekong-Salwin divide. Lat. 28° 10' N. Alt. 10,000 ft. In fruit, October 1914. G. Forrest 13446 (type).

Szechuan. West and near Wên-ch'uan Hsien. Thickets and woodlands. Alt. 1,600-2,300 m. In flower, July 1908. Wilson 1047.

Shrub 3-4 ft. Nut with 4-5 wings. At roadside, Mt. Omei, Omei-

hsien. Alt. 8,500–9,000 ft. In young fruit, 13th August 1928. W. P. Fang 2909.

CENTRAL CHINA.—Hupeh. Fang or Chienshih. In fruit. Henry 6815 A.

Shensi. Tai-pei-shan. In flower, 1910. W. Purdom 432.

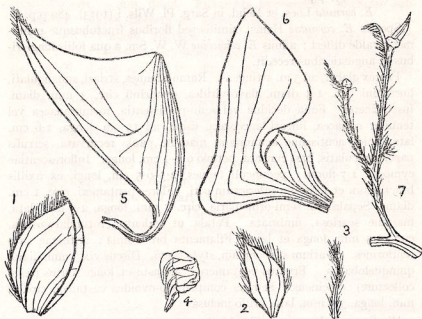
Cult. ex Kansu. Seeds sent by R. Farrer under No. 289 and raised by Mrs. Marion Bruce Wansfell, Windermere. In flower, 7th June 1920.

This species differs from *E. cornuta* Hemsl. in its floral symmetry, pentamerous as against tetramerous. This character may not be constant, but on the material available it holds good. I am indebted to Mr. C. E. C. Fischer for valuable information concerning the type of *E. cornuta* Hemsl. and for confirmation of the fact that all sheets under that species at Kew have either tetramerous or pentamerous flowers; never a mixture of both on the same plant.

***Impatiens barbata* Comber. Sp. nov.**

Species affinis *I. corchorifoliae* Franch. a qua et foliis et sepalis exterioribus ovatis acuminatis, interioribus linearibus pilosis abunde differt.

Herba 30–40 cm. alta omnino plus minusve distincte pilosa, caule



IMPATIENS BARBATA.

1, Dorsal sepal; 2, outer lateral sepal; 3, inner lateral sepal; 4, stamens; 5, lip; 6, wing or petal; 7, inflorescence and ovary.

erecto ramoso. Folia alterna membranacea, elliptica vel elliptico-ovata, 5–12 cm. longa, 2.5–5 cm. lata, supra viridia sparse hirsuta, infra pallidiora et longe et parce pilosa, grosse serrata, serrulis apice setulis



instructis, acuminata, in petiolum robustum strigosum ad 5.5 cm. longum nunc abrupte attenuata (nervis utrinque 6-14). Pedunculi graciles, foliis multo breviores, plerumque 3-flori; pedicelli sub anthesi ad 1.5 longi; duo superiores apices versus bracteati; inferior etiam prope basin bracteatus; bracteae anguste lanceolatae acuminatae strigosae, 4-5 mm. longae. Flores flavi, ad 4 cm. longi. Sepala 4, exteriora oblique ovata, circ. 1 cm. longa, apiculata, pilosa, 3-5-nervia, interiora anguste linearia, aequilonga. Vexillum orbiculare, vix 2 cm. latum dorso pilosum. Alae circ. 2.5 cm. longae unguiculatae; lobus basalis orbicularis; distalis amplus, dolabriformis, deflexus apice obtusus. Labellum saccatum, 2 cm. longum, basi in calcar incurvum nunc leviter bifidum attenuatum, apice unilateraliter acuminatum barbellatum. Filamenta brevia alata; antherae satis conspicuae. Ovarium fusiforme; capsulae lineares apice rostratae.

W. CHINA.—Yunnan. Plant of 12-16 in. Flowers deep yellow. Open situations by streams. On the Tong Shan. Lat. 27° 20' N. Alt. 9,000 ft. In flower, August 1914. G. Forrest 13104 (type).

Region of Tungshan, Yangtze drainage basin, east of Likiang. In flower, 1923. J. F. Rock 10512.

This species is closely allied to *I. corchorifolia* Franch., but it may at once be distinguished by the villosity of its young stems, leaves, and flower buds. Rock's specimen is much coarser and evidently taller, but not otherwise different.

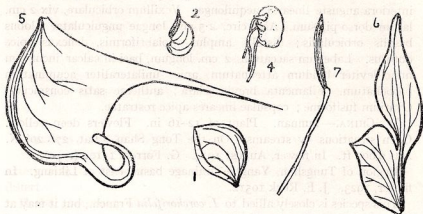
***Impatiens ceratophora* Comber. Sp. nov.**

Species affinis *I. drepanophorae* Hook. f. sed foliis longioribus grosse crenato-serratis, floribus majoribus, labello in processum longissimum tenuem acuminatum producto inter alia differt.

Herba gracilior ad 1 m. alta, glaberrima, caule vix ramoso laxo folioso. Folia alterna sursum verticillata, membranacea, lanceolata vel elliptico-lanceolata, ad 13 cm. longa, 4 cm. lata, supra viridivivacea, infra pallidiora nitentia, crenato-serrata nunc setulis interjectis, longe acuminata, basi angustata, superiora subsessilia, inferiora petiolis ad 4 cm. longis munita (nervis utrinque 8-11). Pedunculi in axillis superioribus dispositi, graciles, 8-20-flori, folia superantes; pedicelli filiformes sub anthesi 1-2 cm. longi; bracteae persistentes lineares, obtusae circ. 3 mm. longae. Flores ad 2.5 cm. longae, luteo-hyalini venulis purpureo-tinctis. Sepala 2, oblique rotundata apice acuta 5 mm. longa, 3 mm. lata, curvato-nervosa. Vexillum orbiculare cucullatum. Alae subsessiles 2.5 cm. longae; lobus basalis oblique et late ovatus, abrupte acutus; distalis vix duplo longior oblique ellipticus, apicem versus attenuatus. Labelli limbus poculiformis e basi gibbosus in calcar incurvum clavatum productus, ore in processum longissimum tenuem acuminatum attenuato. Filamenta circ. 5 cm. longa; antherae obtusae. Ovarium fusiforme. Capsula 2.5 cm. longa linearis apice rostrata.

N.E. UPPER BURMA.—Plant of 2–3 ft. Flowers hyaline, tinged yellow, veined and marked purple-maroon. Shady moist situations amongst scrub. Descent from the Sansi gorge to the Sadon. Lat. 25° 20' N. Alt. 9,000 ft. In flower, September 1912. G. Forrest 9144 (type).

W. CHINA.—Yunnan. Plant of 2–2½ ft. Flowers greyish watery white with purple-lake markings. Moist shady mixed forests. Western



IMPATIENS CERATOPHORA.

1, Dorsal sepal; 2, lateral sepal; 3, stamens; 4, lip; 5, wing or petal; 6, ovary.

flank of the Shweli-Salwin divide. Lat. 25° 20' N. Alt. 8–9,000 ft. In flower, August 1912. G. Forrest 9004.

This species differs from *I. drepanophora* Hook. f. chiefly by the larger flower with a long-beaked gibbous labellum suddenly contracted into a short recurved spur, and by the very oblique sepals and longer narrower leaves.

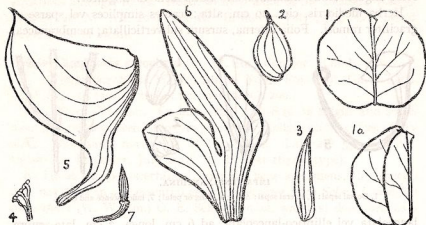
***Impatiens chimiliensis* Comber. Sp. nov.**

Species ex affinitate *I. Pritzellii* Hook. f. a qua caulibus foliosis, pedunculis apicem versus haud aggregatis differt; inter species burmanicas ad *I. Jurpian* Buch.-Ham. approximans sed caulibus glabris, vexilli calcare multo brevior divergit.

Herba robusta glaberrima, 0.75–1.25 m. alta; caulis subsimplex inferne nudus superne foliosus. Folia alterna, membranacea, ovata nunc late ovata, 6–10 cm. longa, 3–5 cm. lata, in sicco supra viridia infra olivacea, crenato-serrata, setulis minutis passim interjectis, breve et abrupte acuminata, in petiolum crassum 1.5–3 cm. longum angustata (nervis utrinque 5–7). Pedunculi elongati robustiores, foliis multo longiores, erecto-patentes, ad 14 cm. longi, apicem versus haud aggregati, 3–9-flori; pedicelli sub anthesi circ. 1.5 cm. longi; bractee ovatae, persistentes, 5 mm. longae, 2.5 mm. latae, longe cuspidatae. Flores ad 4 cm. longi, lutei vel purpurei. Sepala 4, exteriora late ovata, 6–8 mm. longa, 3–5 mm. lata, distincte apiculata, interiora lanceolata,

ad 1.2 cm. longa, 2 mm. lata. Vexillum orbiculare, emarginatum, dorso costa conspicue elevata praeditum. Alae circ. 3 cm. longae sessiles; lobus basalis late ovatus, distalis elliptico-lanceolatus apice obtusus. Labelli limbus hemisphericus vel poculiformis ad 2.5 cm. longus, 2 cm. latus, basi calcare opimo 8 mm. longo incurvo instructus. Filamenta anguste alata, circ. 5 mm. longa; antherae obtusae. Ovarium fusiforme rectum. Capsulae immaturae lineares, multi-ovulatae, apice rostratae.

N.E. UPPER BURMA.—Plant of 2–3½ ft. Flowers creamy-yellow and purple. Moist shady and open situations on the margins of thickets and by streams. Western flank of the Chimili, N'Maikha-Salwin



IMPATIENS CHIMILIENSIS.

1. 1a, Dorsal sepal; 2, outer lateral sepal; 3, inner lateral sepal; 4, stamens; 5, lip; 6, wing or petal; 7, ovary.

divide. Lat. 26° 23' N. Long. 98° 48' E. Alt. 11,000 ft. In flower, September 1924. G. Forrest 24931 (type).

Plant of 2–4 ft. Flowers golden-yellow, stained purplish on exterior. In and on the margins of alpine thickets and by streams. Western flank of the N'Maikha-Salwin divide. Lat. 26° 25' N. Long. 98° 48' E. Alt. 12–13,000 ft. In flower, September 1925. G. Forrest 27237.

In number and ugliness the *Impatiens* of these alpine woods baffle reckoning. This is the best, with yellow flowers (varying, I think, to mauve and purple). Abundant in the upper woodland zone, springing densely up to overshadow the *Primulas* F. 824 and 923. Chimili valley. Alt. 11–12,000 ft. In flower, 1st August 1919. R. Farrer 1155.

A coarse, untidy, bronzy-foliaged species, with musty yellow flowers, lined with brown and tawny internally. From 1–3 ft. high. Abundant among the boulders of the screes, and among the smallest rhododendron scrub of the higher alpine slopes. Chawchi Pass. Alt. 12,000 ft. In flower, 28th August 1920. R. Farrer 1863.

This species is closely related to the Chinese *Impatiens Pritzelskii*

Hook. f. and to *T. omeiana* Hook. f. From both it differs in its leafy stems with the peduncles not grouped toward their apices.

Amongst the Burmese species it is nearest to *I. Jurpia* Buch.-Ham., from which it may be distinguished by its coarse glabrous stems, broader, shorter, and less acuminate leaves, and by the much shorter horn or spur of the vexillum. It has also affinity with the Assam *I. Cathcartii* Hook. f., from which it differs markedly by the smaller sepals and large cuspidate bracts.

***Impatiens xanthina* Comber. Sp. nov.**

Species affinis *I. arctosepalae* Hook. f. sed caulibus scabrido-puberulis, foliis angustioribus, filamentis late alatis facile distinguitur.

Herba mediocris, circ. 20 cm. alta; caules simplices vel sparse et graciliter ramosi. Folia alterna, sursum subverticillata, membranacea,



IMPATIENS XANTHINA.

1, Dorsal sepal; 2, lateral sepal; 5, lip; 6, wing or petal; 7, inflorescence and ovary.

lanceolata vel elliptico-lanceolata, ad 6 cm. longa, 2 cm. lata, supra viridia, praecipue ad nervos parissime setulosa, costa distincte elevata, infra glaucescentia manifeste papillata, crenato-serrata, setulis nunc inter dentes interjectis, acuminata, superiora subsessilia, inferiora in petiolum ad 1.5 cm. longum sensim attenuata (nervis utrinque 7-9). Pedunculi tenues, foliis dimidio breviores, puberuli, 1-2-flori; pedicelli circ. 1 cm. longi, inferior basi bracteatus, superior paulo supra basim bractea minuta ovata acuta dorso setulosa instructus. Flores lutei, fauce fusco-purpureo-picti, ad 2 cm. longi. Sepala 2, triangulari-ovata, 9 mm. longa. Vexillum suborbiculare, cucullatum, 7 mm. latum, dorso puberulum. Alae subsessiles, circ. 1.6 cm. longae; lobus basalis parvus rotundatus, distalis multo major, dolabriformis. Labelum longe infundibuliforme, limbo 2 cm. longo, in calcar elongatum involutum sensim attenuatum, ore circ. 8 mm. latum. Filamenta 3 cm. longa late alata; antherae obtusae. Ovarium ellipticum 3 mm. longum, apice distincte 5-lobatum. Capsulae ovoideae turgidae.

W. CHINA.—Yunnan (?). Plant of 20 cm. high. Flowers bright golden-yellow with a distinct purplish blotch in the centre. Without precise locality or date. G. Forrest 29913 (type).

N.E. UPPER BURMA.—Flowers orange with dull brownish spot on lower lip. On rocks in torrents, splashed by the water. Deep shade.

Valley of the Naung-chaung. In flower, 20th August 1914. F. K. Ward 1892 and 1921.

This species is closely allied to *Impatiens arctosepala* Hook. f. and to *I. microcentra* Hand.-Mazz., but may be distinguished from both by its rough puberulent stems, leaves, and pedicels, and winged filaments. From the former species it also differs in its fewer flowered peduncles and narrower leaves.

**Indigofera scabrida** Dunn forma **alba** Comber. Form. nov.

A typo floribus albis habitu laxiore differt.

W. CHINA.—Yunnan. Plant of 2–2½ ft. Flowers white. Open situations amongst rocks. North-western flank of the Lichiang Range. Lat. 27° 20' N. Alt. 10–11,000 ft. In flower, July 1914. G. Forrest 12768 (type of form).

**Solms-Laubachia xerophyta** (W. W. Sm.) Comber. Comb. nov.

*Parrya xerophyta* W. W. Sm. in Notes Roy. Bot. Gard. Edin. xii (1920), 217, et l.c. xvii (1930), 200.

W. CHINA.—Yunnan. Cushion plant of 6–8 in. in height and somewhat greater diameter. Flowers pale rose. Ledges and crevices of dry cliffs. Mountains north-east of Chungtien. Lat. 27° 55' N. Alt. 14,000 ft. In flower, July 1918. G. Forrest 16444 (type).

As far as can be ascertained from the type specimens, this species does not differ in any essential generic character from *Solms-Laubachia linearifolia* (W. W. Sm.) O. E. Schulz, which was first described as a *Parrya*.

In view of the very close affinity between the present plant and that species, and the obvious dissimilarity between them and the original species of *Parrya* (*P. arctica* R. Br.), it is considered advisable to transfer it to *Solms-Laubachia*, even in the absence of mature fruits. A small portion of the type sheet is referable to *Solms-Laubachia linearifolia* (W. W. Sm.) O. E. Schulz.